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# THE DENTAL PRACTITIONER

*A monthly journal for the Practitioner and his Staff*

VOL. I, NO. 5 JANUARY, 1951

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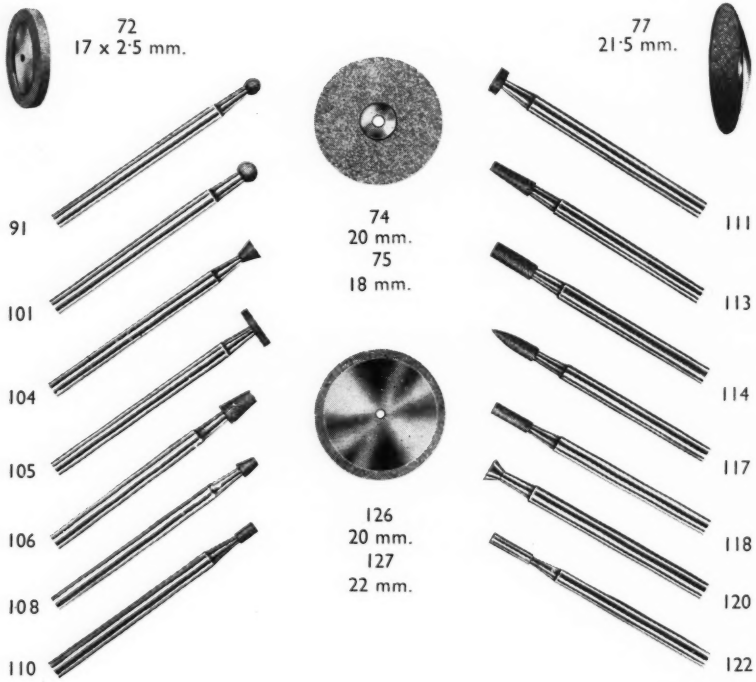


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# THE DENTAL PRACTITIONER

*A Monthly Journal for the Practitioner and his Staff*

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VOL. I, No. 5 — JANUARY, 1951

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THE
# THE DENTAL PRACTITIONER

*A Monthly Journal for the Practitioner and his Staff*

Vol. I, No. 5 January, 1951

*ITORIAL*

## WHAT, NO IDEAS!

A HAPPY NEW YEAR, readers all! As this is the time when resolutions are made, we would like to suggest that one of your good resolutions should be to send at least one illustrated hint to THE DENTAL PRACTITIONER. You probably think you don't know any suitable hints, but check up on yourself the next time you are working and say "is this the *usual* way or is it a method I have adopted as the result of experience?" If the latter, then it should be the subject of a hint. Don't say "I can't illustrate it", because a proper drawing is not necessary. All we want is a rough sketch, and our artists will do the rest.

Let this resolution be one at least which is not broken. Send your hint, with illustration if possible; for every one published we will pay half a guinea. We want hints for dentists, technicians, and nurse-receptionists—for all, in fact, who read this journal.

### THIS NUMBER

The staff of the University of Bristol Dental School have contributed the bulk of the subject-matter in this number as in the last, and we are sure you will all agree that their contributions have been both generous and excellent. Thank you, Bristol.

### THE FUTURE

We have much of interest to offer you all in this year of 1951. Many suggestions for articles have been received, and we are arranging for well-known persons to write them for us. Already, since the last Editorial calling on manufacturers to give us the opportunity of testing new equipment, etc., we have received considerable assistance in this matter and we hope to start the column in our next issue.

Articles for students on "Dental Mechanics and Materials" will commence early this year and should prove of value to dental students, apprentice technicians, and to those members of our profession who have apprentices with no polytechnic facilities available, and who therefore find it entirely their responsibility to train these lads in theory as well as practice.

### A REMINDER

Articles, interesting case histories, X-rays, and hints are always wanted. Overcome any inhibitions you may be harbouring and let us hear from you. If we can help in the preparation of material please let us know. Don't put off writing until 1952. Readers want to read what you have to say *now*, so let us resolve to make 1951 the year of real achievement.

# SURGICAL CASES FROM DENTAL PRACTICE

## WITH OBSERVATIONS ON TECHNIQUE AND THE TREATMENT OF CAVITIES IN BONE

By S. KILSHAW RIGG, L.D.S. R.C.S. Eng., L.R.C.P., L.R.C.S. Edin., L.R.F.P.S.

*Senior Consultant Dental Surgeon, United Bristol Hospitals*

In this article the writer describes some cases from his practice and adds comments which are mainly of a clinical nature. The practitioner whose activities lie in this field will find little with which he is unfamiliar, but it is hoped that his colleague who is less directly concerned may find interest and, perhaps, receive some help in the investigation of some of the less common swellings about the jaws with which he may be confronted.

*Fig.* 1.—*Case* 1. Photograph of model.

### CASE REPORTS

*Case* 1.—Male, 43 years.

History.—Several attacks of pain in the right lower molar region with slight swelling and slight trismus. An attempt had been made to remove what an intra-oral radiograph suggested might be buried roots embedded in sclerosed bone. Suppuration followed and an external sinus appeared at the lower border of the mandible near to the anterior edge of the masseter muscle. Pain disappeared except for occasional recurrences. Deterioration of health with interruption of work caused the patient some months later to return to his practitioner, who referred him for assistance.

Clinical Examination.—The edentulous portion of the ridge showed a fixed, firm, non-tender enlargement of moderate size, with a hard roughened mass presenting on the crest of the ridge (*Fig.* 1). External swelling was not great; pus was being discharged through the external sinus. Pain was not marked, but the patient was debilitated and looked toxæmic.

Radiographic Examination.—In the otherwise edentulous molar region is seen (*Fig.* 2) an unerupted molar with its root end directed forward and very close to the lower border of the mandible; it is lying beneath and in contact with a dense mass the upper surface of which presents into the mouth. The mass is irregular in outline and shows radiating zones of varying degrees of radio-opacity. The dark ribbon-like shadow of the mandibular canal is seen to be displaced downwards almost to the lower border of the mandible whence it curves upwards rather abruptly to the mental foramen. A further radiolucent band (representing a soft tissue capsule) is seen closely

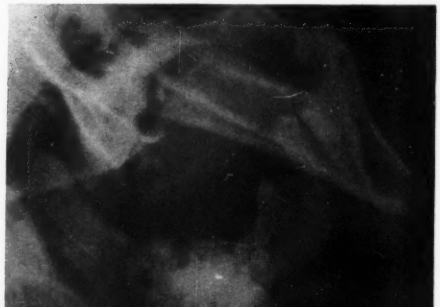
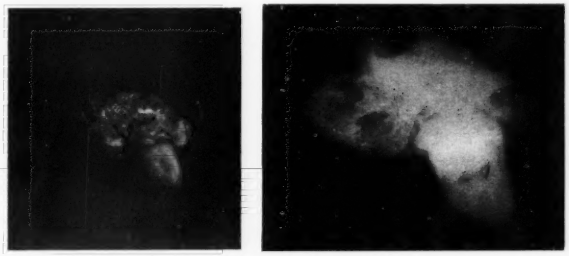


*Fig.* 2.—*Case* 1. Extra-oral X-ray of odontome.

applied to the lower and anterior borders of the tumour and to the neck of the molar, although not surrounding the root of the tooth. The surrounding bone is normal.

DIAGNOSIS.—Complex composite odontome, secondarily infected and with chronic symptoms.

OPERATION.—General anæsthesia. A muco-periosteal flap was reflected, a sufficiency of bone was removed mesially, buccally, and distally, and the tumour was removed. The bone was rather dense, the tooth was firmly embedded and was removed separately. The mandibular nerve lay at the base of the cavity. Hæmorrhage was free, but not excessive. The external sinus was enlarged and a rubber drain inserted into the cavity, which was packed with gauze. Healing was uncomplicated.



*Figs.* 3, 4.—*Case* 1. Photograph and X-ray of specimen.

**Comments.**—The tumour, which was surrounded by a capsule of soft tissue, consisted of dentine, enamel, and cementum, its specific gravity being rather greater than that of the tooth. It is seen after removal in *Figs.* 3 and 4.

The complex composite odontomes are said to be found usually, or always, posterior to the pre-molar region, whereas the compound variety occurs anterior to the premolars and the writer's cases have followed this distribution. It will be recalled that the solid odontomes, sometimes discovered in the course of routine radiological examinations, commonly give no symptoms until adult life is reached. If communication with the mouth becomes established, infection follows and the clinical picture resembles that of an alveolar abscess which may be either acute or chronic, depending upon the virulence of the organisms concerned, the resistance of the patient, and the degree of drainage available.

*Case* 2.—Female, 24 years.

HISTORY.—Several weeks of discomfort in the right lower molar region followed by pain of rapidly increasing severity, swelling, and malaise.

CLINICAL EXAMINATION.—The patient was in severe pain, looked and felt ill, and had a temperature of 103°. The right lower second molar was loose and tender, with pus emerging from its distal aspect by way of a sinus, at the base of which was felt a hard irregular mass. The soft tissues bucally, and to a lesser degree lingually, towards the floor of the mouth, were engorged and swollen, as was the outside of the face in this region. There was moderate rismus and the clinical picture was that of an acute alveolar abscess.

RADIOGRAPHIC EXAMINATION.—A dense mass of varying degrees of radio-opacity and of irregular outline is seen (*Fig.* 5) in contact with the distal aspect of the second molar root. It extends downwards and backwards and immediately beneath it is seen the third molar with its root apices close to the lower border of the mandible just above the angle. The surrounding bone is normal.

DIAGNOSIS.—A complex composite odontome, secondarily infected and with acute symptoms.

OPERATION.—The tooth was removed promptly under $N_2O$ and drainage was established. The tumour (*Fig.* 6) was removed intra-orally, under general anæsthesia, a week or so later, when the condition was quiescent.

The mandibular nerve was lying along a groove on the lingual aspect of the third molar, which was also removed.

*Fig.* 5.—*Case* 2. X-ray of extra-oral odontome.

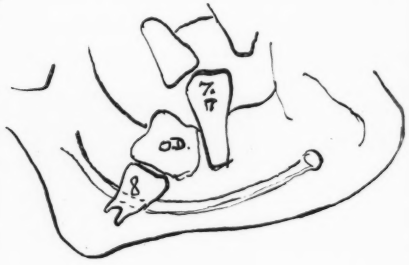
**Comments.**—The absence of a capsular shadow in the radiograph, distal to the tumour, is noteworthy and suggests that the line of demarcation between the tumour and the bone is narrow and that the tumour would be firmly adherent. This proved to be so, whereas the main difficulty in the first case described lay in delivering the relatively large tumour without incurring a fracture after removing the necessarily substantial amount of bone. The aberrant pulp chamber emerged on the distal aspect of the third molar root.

*Fig.* 6.—*Case* 2. X-ray of specimen.

*Case* 3.—Male, 20 years.

HISTORY.—This patient had had a non-tender swelling of his left upper canine and premolar region for several years. He sought advice when the swelling began to arouse comment and when pain due to thermal changes was experienced.

CLINICAL EXAMINATION.—There was a fixed, firm, and slightly nodular, non-tender swelling of the labial and buccal alveolus extending from $\underline{|1}$ to $\underline{|5}$, with a slight bulge in the palate near to the canine tooth. The overlying mucosa was normal in appearance. The teeth were sound with the exception of $\underline{|4}$, which had a carious exposure of the pulp, which accounted for the pain (*Fig.* 7).



RADIOGRAPHIC EXAMINATION.—A radio-opaque mass with fine radiolucent linear areas giving an appearance of segmentation is seen. This extends from $\underline{|2}$ to $\underline{|5}$ and is closely applied to the floor of the maxillary sinus (*Fig.* 8).

*Fig.* 7.—*Case* 3. Photograph of model.

DIAGNOSIS.—Compound composite odontome.

OPERATION. — General anæsthesia. The tumour was exposed by reflecting a muco-periosteal flap as indicated in *Fig.* 7. It was

very firmly fixed between the teeth, which unfortunately had to be sacrificed. The wound

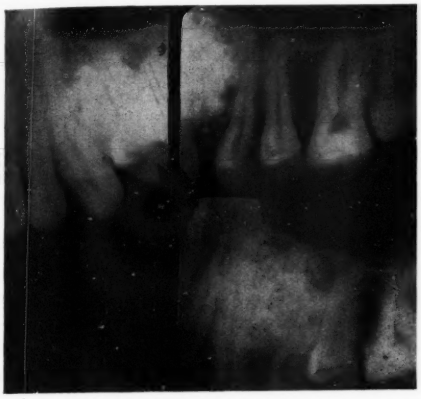


*Fig.* 8.—*Case* 3. X-ray of odontome.

was closed without drainage and healing was uneventful.

**Comments.**—The labial and lingual aspects of the tumour are shown in *Figs.* 9 and 10 respectively. The divergence of $\underline{|3}$ and $\underline{|4}$ is noteworthy. The odontome consisted of approximately 40 denticles. Some were immovably fixed together by their root portions

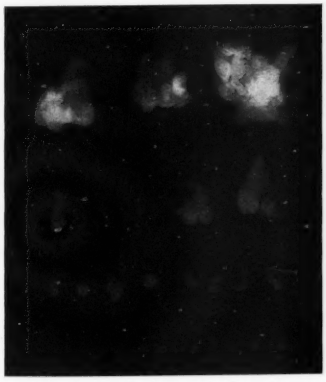
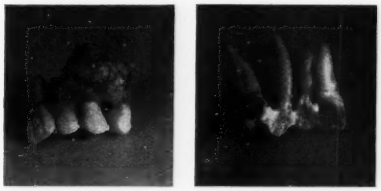


*Fig.* 11.—*Case* 3. X-ray of dissected specimen.

in groups, others were easily separated, each being surrounded by a thin membrane. The X-ray appearance (*Fig.* 11) is that of miniature malformed teeth, with indications of dentine, enamel, and pulp chambers.

Compound composite odontomes are not very rare; the writer's cases have consisted of a small number of denticles, although cases



*Figs.* 9, 10.—*Case* 3. Photographs of specimen, labial and lingual.

involving some hundreds of denticles have been reported.

*Case* 4.—Female, 13 years.

History.—A malformed tooth in the place of $\underline{2|}$ was becoming tender and slightly loose.

Clinical Examination.—A bulky conical tooth was found to be present in the place of $\underline{2|}$. The neighbouring teeth were normal, but $\underline{3|}$ was not visible.

Radiographic Examination.—The place of $\underline{2|}$ is occupied by a malformed tooth, the

*Fig.* 12.—*Case* 4. X-ray of odontome.

root being represented by an expanded mass which is radiolucent centrally. Above this is seen the unerupted "canine" (*Fig.* 12).

DIAGNOSIS.—Dilated composite odontome.

OPERATION.—This consisted of simple removal.

**Comments.**—Longitudinal and transverse X-ray appearances of the tumour are shown in

*Fig.* 13.—*Case* 4. X-ray of specimen.

*Fig.* 13. The line drawing shows the typical arrangements of dentine, enamel, and cementum, the cavity being occupied by soft pulpy tissue.

*Case* 5.—Female, 11 years.

HISTORY.—A left upper central incisor was unerupted, its predecessor being retained beyond the normal age.

RADIOGRAPHIC EXAMINATION.—The incisor crown shows a central radiolucent area with a radio-opaque mass within (*Fig.* 14).

DIAGNOSIS.—Gestant composite odontome.

TREATMENT.—Simple removal.

**Comments.**—Care should be taken not to mistake a supernumerary tooth lying at a deceptive angle behind an incisor for a gestant odontome. The writer recalls seeing very few gestant odontomes. In each case the tooth was larger than its fellow, but occlusal and, if necessary, lateral maxillary radiographs should be taken to exclude one or more supernumerary teeth and to confirm the diagnosis.

*Case* 6.—Male, 12 years.

HISTORY.—At the age of 6 years there had been a painful swelling in the left lower canine region. This either ruptured spontaneously or was incised. A few weeks before the present examination, pain was experienced together with swelling. The patient and parent thought that there had been a slight swelling for a long time.

CLINICAL EXAMINATION.—The labial sulcus from the left lower central incisor to the retained left lower temporary canine was occupied by a fluctuant tender swelling and pus was emerging around the temporary canine. There was palpable a firm swelling, just visible externally, extending from the labial alveolus towards the symphysis. Apart from the latter finding the picture was one of subacute alveolar abscess. The alveolar process in the premolar and molar regions of the same side was underdeveloped, the teeth

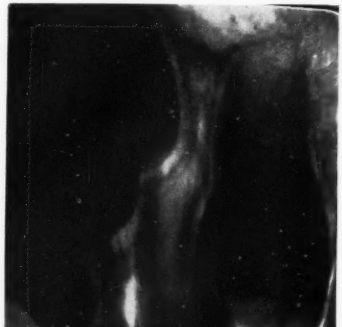


*Fig.* 14.—*Case* 5. X-ray of gestant odontome.

mentioned occluding completely palatally to their fellows in the maxilla.

RADIOGRAPHIC EXAMINATION.—An occlusal film (*Fig.* 15) shows the permanent canine lying in a radiolucent area beneath the apices of the lower incisors. The cavity is of appreciable size and extends towards the symphysis menti.

DIAGNOSIS.—Dentigerous cyst of lower canine, secondarily infected.

OPERATION.—General anæsthesia. A muco-periosteal flap extending from the midline to the premolar area was outlined, and, together with the attachment of the lip, was reflected

*Fig.* 15.—*Case* 6. X-ray of dentigerous cyst.

to a point below the apices of the lower incisors. The cavity was entered at this level, but adequate access could not be secured without removing several of the teeth and the adjacent labial alveolus. The thick pulpy lining with its pultaceous and chocolate-coloured contents and the tooth were removed completely. The cavity was closed by replacing and suturing the flap except in its upper part, where a light gauze pack was inserted. The latter was renewed several times and healing was secured without further pain, swelling, or suppuration.

A reconstructed model is shown (*Fig.* 16) with a previously made cap splint for use in case of fracture, which did not occur.

**Comments.**—The writer has experienced several similar cases. It will be recalled that dentigerous cysts usually give rise to symptoms or signs at about the time when one of the more commonly involved canine or third molar teeth would normally be due to erupt. He has, however, had several clinically indistinguishable cases in various parts of the mouth in adults. The history is one of slow progressive growth without symptoms unless and until infection takes place. This may arise from the removal or shedding of a neighbouring tooth, or from spontaneous rupture some time after part of the bone has become eroded (as often happens) or from an incision made by the practitioner. When acute symptoms arise the condition may easily be mistaken for an alveolar abscess in connexion with an adjacent and possibly loose and tender temporary tooth. The underlying firm bony

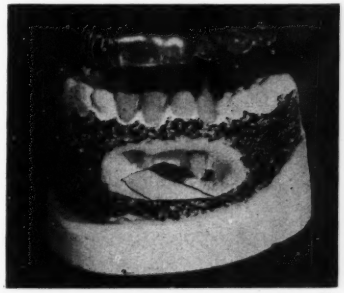


*Fig.* 16.—*Case* 6. Model after operation, showing splint and tooth in situ.

expansion is often masked by the painful swelling of the soft tissues. If a supernumerary tooth is the cause there need be no permanent tooth missing from the series to arouse suspicion, and if a radiographic examination is omitted the diagnosis may not be made.

In certain non-infected cases and perhaps, since the advent of antibiotics, in selected mildly infected cases also, it is not always necessary after opening the cyst to remove all the teeth involved. The latter sometimes erupt into good position and complete their growth. But radical treatment is essential in cases such as the one described, and as the loss of neighbouring non-involved teeth in order to secure access is very regrettable, the method discussed in the next case may be preferred.

*Case* 7.—Male, 13 years.

HISTORY.—Some weeks of discomfort in the left lower canine region followed by rapid increase in pain with the onset of swelling, external pointing, and the formation of a sinus.

CLINICAL EXAMINATION.—The lower incisors were tender to pressure and slightly loose and the left lower canine was not visible. There was a firm expansion of the labial alveolus of moderate size, extending from the left lower central incisor to the first premolar. This

could also be felt externally to the left of the symphysis. Pus was being discharged through a sinus emerging at the point of the chin.

RADIOGRAPHIC EXAMINATION.—Intra-oral apical and occlusal films showed the canine to

*Fig.* 17.—*Case* 7. Extra-oral X-ray of dentigerous cyst.

be lying in a cavity of some size beneath the apices of the lower incisors and premolar. It is seen again in *Fig.* 17 (in which the apparent

*Fig.* 18.—*Case* 7. Anteroposterior X-ray.

breach in the continuity of the lower border of the mandible is fallacious).

An anteroposterior radiograph (*Fig.* 18) shows the site of the sinus (upon which is superimposed the shadow of a button).

DIAGNOSIS.—Dentigerous cyst of $\overline{3}$, secondarily infected, with external sinus.

OPERATION.—General anæsthesia. As operation intra-orally would have necessitated the loss of several sound incisors in this young patient, it was decided to operate by the extra-oral route.

An incision approximately 1½ in. in length was made at the lower border of the symphysis

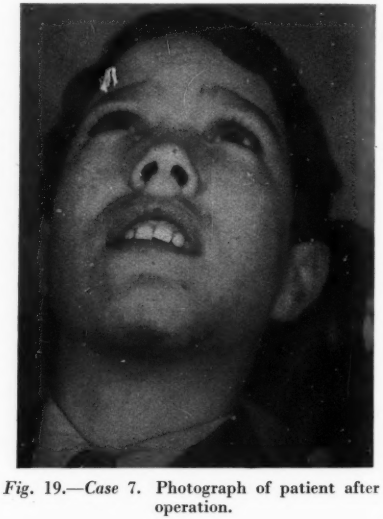


*Fig.* 19.—*Case* 7. Photograph of patient after operation.

menti to the left of the midline (*Fig.* 19, three days after operation). The incision was carried to the bone, passing through skin, superficial fascia, some fibres of the platysma and levator menti muscles, and the periosteum. A few small spurting vessels were secured and ligated. The soft tissues were then stripped from the bone and retracted in an upward direction. There was little bulging of the cyst wall in this case and no thin bone could be identified. In order not to endanger the apices of the lower incisors it was necessary to enter the cavity at a low level. This approach necessitated the removal of an appreciable amount of extremely dense bone, as was anticipated in this region, by means of mallet

and chisels. The entrance to the cavity was enlarged, the semipurulent contents evacuated and the thick pulpy lining together with the tooth removed completely. The incisor roots were not exposed. The cavity was filled with an antiseptic paste (referred to later) and the flap returned without drainage. The incision in the periosteum was closed with fine non-hardened catgut, as was the muscle layer separately. After paring the margins of the sinus orifice the skin incision was closed by small Michel's clips placed closely. Alternate clips were removed twenty-four hours later and the rest on the following day. Healing was uneventful and some months later the teeth remained firm and vital and the scar was minimal.

*Fig.* 20.—*Case* 8. Photograph of patient before operation.

**Comments.**—This somewhat more difficult extra-oral operation, with the possibility of a visible scar, needs to be weighed against the more usual intra-oral operation which is generally accompanied by the loss of several teeth and the necessity for a denture. Points of interest are the density of the bone to be expected and the method of wound closure which aims at scar reduction.

*Case* 8.—Male, 13 years.

HISTORY.—Some months before examination by the writer, a swelling of the right side of the face appeared. An examination of his well-cared-for teeth having revealed no apparent dental cause, the swelling was at first suspected of being due to the onset of mumps as he was thought to have been exposed to this disease. The swelling receded and no symptoms or further signs arose for some time.

CLINICAL EXAMINATION.—The dentition was somewhat retarded for the patient's age and the right lower second molar was not visible, there being no history of its having been extracted. Behind and close to the right lower first molar, and slightly buccal to the crest of the ridge, a narrow sinus of some depth was found, and from this pus could be seen to flow when pressure was applied to the outside of the face in that region. The right side of the face was appreciably swollen (*Fig.* 20), involving an area extending from the first molar region to a point behind the angle of the mandible and thence upwards over the whole of the ascending ramus. The swelling was firm, not movable, and not very tender. The angle of the mandible felt bulky as compared with its fellow. Intra-orally the anterior border of the ascending ramus was convex and appreciably enlarged in its lateral dimension. The rest of the mouth showed no abnormality.

*Fig.* 21.—*Case* 8. Intra-oral X-ray (R. and L.).

RADIOGRAPHIC EXAMINATION.—An intra-oral film of the right side shows $\overline{6}|$ to be in normal position with the bone distal to its posterior root deficient. Beneath this is seen the crown of a malformed second molar. Distally there is a radiolucent area of bone destruction (*Fig.* 21, left). No trace of a

third molar is evident, whereas on the opposite side (*Fig.* 21, right) the corresponding teeth are seen to be normal apart from some degree of crowding.

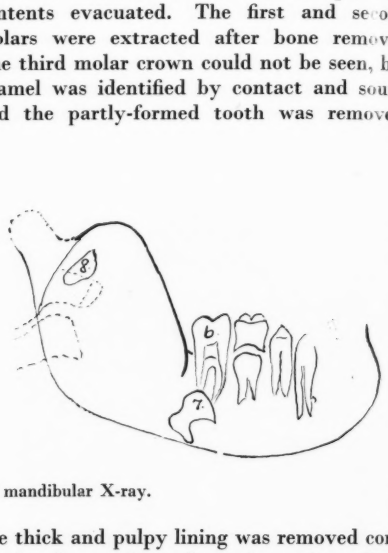



*Fig.* 22.—*Case* 8. Extra-oral mandibular X-ray.

An extra-oral radiograph (*Fig.* 22) shows a considerable expansion of the ascending ramus involving the posterior border and the angle as well as the anterior border including the tip of the coronoid process. Within these limits the whole area is radiolucent. The shadow of the mandibular canal is not visible. The second molar is seen at the lower border of the mandible. The third molar is not readily seen, but a semi-elliptical radio-opaque area high up immediately beneath the sigmoid notch suggests a partly-developed molar crown. Repeated radiographs failed to differentiate this shadow clearly from those of the adjacent spinous processes of the cervical vertebræ.

DIAGNOSIS.—Secondarily infected dentigerous cyst of the right lower third molar involving most of the ascending ramus, with upward displacement of the third molar to the sigmoid notch.

OPERATION.—General anæsthesia. A vertical incision was made from a point between the upper and middle thirds of the ascending ramus to the distal aspect of the first lower molar, with a secondary incision downwards into the buccal sulcus between $\overline{6}\ \overline{5}|$. The mucoperiosteal flaps so outlined were retracted buccally and lingually. The cyst was entered by chisel and bone cutters and the purulent contents evacuated. The first and second molars were extracted after bone removal. The third molar crown could not be seen, but enamel was identified by contact and sound and the partly-formed tooth was removed. The thick and pulpy lining was removed completely; hæmorrhage from the region of the mandibular foramen was very copious and was controlled by firm pressure with previously prepared hot swabs. The upper part of the incision was sutured; the lower parts of the flaps were invaginated and the cavity was packed with gauze. An obturator, made ten or fourteen days later, was worn for some weeks and healing was uncomplicated.

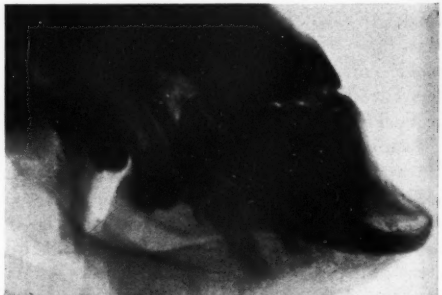


*Fig.* 23.—*Case* 8. X-ray 1 year after operation.

**Comments.**—The writer has dealt with several cases of dentigerous cysts of this size and in this region, but usually the third molar appears to have been entirely represented by the cyst. This patient's health improved, headaches disappeared, and weight was rapidly gained. The remarkable power of regeneration possessed by the mandible is well shown in *Fig.* 23, which shows the return to normal contour within eleven months. Further examination in September, 1950, thirteen years after operation, confirms that there has been no recurrence (*Fig.* 24).

As cases of multiple dentigerous cysts have been experienced, the entire mouth is always examined radiographically. A familial tendency has also been observed, although rarely. The sister and brothers of this patient were accordingly examined, with negative results,

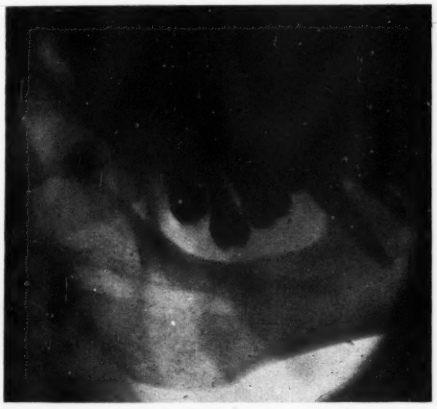


*Fig.* 24.—*Case* 8. X-ray 13 years after operation.

although the sister, next to be described, showed another abnormality.

*Case* 9.—Female, 16 years.

HISTORY.—This patient was examined in order to exclude cysts of the mandible or maxilla.

CLINICAL EXAMINATION.—The only abnormality found was a hard, smooth, immovable swelling of the left side of the symphysis menti. This was barely visible but was easily felt. The overlying skin was slightly reddened and there was a readily palpable submental gland.

RADIOLOGICAL EXAMINATION.—An occlusal view (*Fig.* 25) shows the cortex of the mandible

*Fig.* 25.—*Case* 9. X-ray of osteoma of mandible.

to the left of the midline to be abruptly expanded into a rounded eminence, the bone structure being normal in appearance.

DIAGNOSIS.—Osteoma of the cancellous type.

TREATMENT.—Operation was advised only if the condition became unsightly or troublesome.

**Comments.**—The enlarged gland was attributed to a local dermatitis due to the patient's habit of rubbing the lump on her chin. When the cause was explained, the skin returned to normal and the gland became impalpable. Thirteen years later it is reported that no change is apparent and no treatment has been required.

*Case* 10.—Female, 12 years.

HISTORY.—Several operations upon mandibular swelling, prolonged suppuration, large external sinus.

CLINICAL EXAMINATION.—Very appreciable enlargement of the left side of the face and submandibular region with palpable enlargement of the angle of the mandible and all accessible parts of the ascending ramus. Pus discharging from sinuses in the second and third molar region and from an external sinus with excoriation of the neighbouring skin.

RADIOGRAPHIC EXAMINATION.—This shows (*Fig.* 26) expansion of the angle of the mandible, ascending ramus, and coronoid process,

*Fig.* 26.—*Case* 10. Extra-oral X-ray of mandible.

which are relatively radiolucent and devoid of bone pattern.

OPERATION.—General anæsthesia. Removal of adjacent teeth, complete removal of lining and contents, and external drainage.

*Fig.* 27.—*Case* 10. Photograph of patient after operation.

**Comments.**—The condition a few days after operation is shown in *Fig.* 27. (The vertical dotted line is an artefact.) Progress was satisfactory and the patient was discharged clinically sound. Ten years later it was reported that no recurrence had taken place.

*Case* 11.—Male, 52 years.

HISTORY.—Increasing swelling in the lower molar region of at least ten years' duration. Advice sought only when deglutition became increasingly difficult.

CLINICAL AND RADIOGRAPHIC EXAMINATIONS.—Findings typical of an extensive cyst,

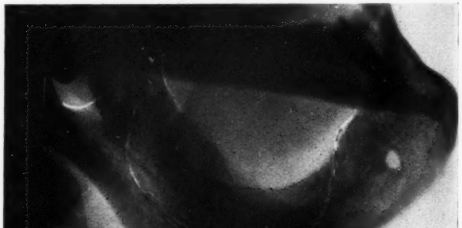


*Fig.* 28.—*Case* 11. Extra-oral X-ray of mandible 1 year after operation, with original condition indicated.

presumably of the radicular type, the causative tooth having been removed many years earlier.

There was a very large swelling of the soft tissues pushing the tongue to one side and forming a mechanical barrier to deglutition.

OPERATION.—Removal of lining and invagination of flaps.

**Comments.**—This case is included in order to illustrate bone regeneration in the older patient. In *Fig.* 28 (a radiograph taken one year after operation) is seen a dotted line indicating the original extent of the cyst. It was obtained by superimposing the pre-operative film which is damaged and not suitable for reproduction.

*Case* 12.—Female, 52 years.

HISTORY.—Edentulous for many years. A swelling in $\overline{8}|$ region was investigated preparatory to constructing new dentures.

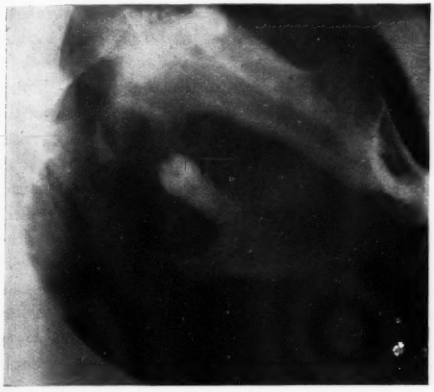


*Fig.* 29.—*Case* 12. Extra-oral X-ray of mandible.

CLINICAL EXAMINATION.—A firm, non-tender, rounded swelling was found in $\overline{8}|$ region. The lower half of the anterior border of the ascending ramus was expanded in a forward direction and also laterally.

RADIOGRAPHIC EXAMINATION. — An unerupted lower third molar is seen with its crown directed distally (*Fig.* 29). It lies at the anterior border of a cavity which extends backwards and downwards to a point close to the lower border and thence upwards towards the coronoid process.

CLINICAL DIAGNOSIS.—Dentigerous cyst of right lower third molar.

OPERATION.—The cyst was entered via the lower part of the anterior border of the ascending ramus. Thin fluid contents evacuated, moderately thick lining and tooth completely removed. Cavity packed with gelatin sponge plus thrombin and penicillin. Cavity sutured without drainage. Healing was uneventful and three months after operation (July, 1950) is clinically sound.

**Comments.**—In adult patients, cysts in this region should be suspected of being adamantinomata, in which case conservative treatment, although accompanied by apparently satisfactory healing and partial regeneration, is likely to be followed by recurrence a very few years later. The existence of the unilocular type of adamantinoma should be borne in mind, as should the possibility of the case having presented before the external contours of the bone have become noticeably altered. In doubtful cases a biopsy, which is thought to be free from risk of producing exacerbation, may save the patient from an ineffective conservative operation or, alternatively, from an unnecessarily radical procedure.

## DISCUSSION

In oral surgery, as in other branches of surgery, consistently good results depend upon diagnosis and clinical judgement rather than upon the employment of any one technique, but further observations may not be out of place.

### ANÆSTHESIA AND THEATRE TECHNIQUE

The writer recalls how, some thirty years ago, guided by the writings of Guido Fischer, he laboriously taught himself, at first in the dissecting room, the now commonplace technique of regional anæsthesia. For some years he operated on all suitable, and some unsuitable, cases under this form of anæsthesia. General anæsthesia, however, became the method of his choice in the cases he considered to be difficult. This not only reduced fatigue for his patients and for himself, but made a more rigid aseptic technique attainable. At that date his insistence that precisely the same aseptic precautions were necessary in his cases as in any other surgical operations was the occasion for a certain amount of scepticism and even mild amusement. It is still true, however, that althought the oral cavity cannot be sterilized the operator can and should refrain from introducing extraneous contamination and that the results of jaw infections can

be just as unwelcome as can those in other parts of the body. For many years now students have been taught a proper theatre technique and many readers will not remember when this was not the normal routine in oral cases in nursing homes and hospitals.

Rapid progress in methods of anæsthesia brought about a further transformation in safety and convenience. It is firmly believed that virtually every case of oral surgery which justifies a general anæsthetic calls for endotracheal anæsthesia, to which an intravenous injection of pentothal is a comfortable preliminary. Endotracheal anæsthesia has been routine in many quarters for some years, as only by this means can the mouth be completely isolated from the air-passages. Should there be some who, of necessity, operate without this latter precaution they are doubtless uncomfortably aware of the implications. If there are others who are not quite convinced of the need for this care, a visit to a department of thoracic surgery would be illuminating. There the results of aspiration into the air-passages of fluid or solid debris might be observed, either upon current cases or as evidenced by radiographs and portions of lungs in specimen jars.

### THE TREATMENT OF CYST LININGS

In order to avoid recurrence the writer has always preferred to remove the whole of the lining unless by so doing he would open into the mandibular canal, orbit, nasal cavity, or maxillary sinus. Since good results have followed the extension into the nose or the maxillary sinus of selected cysts, apprehension on this score is no longer felt. The writer expresses his appreciation of the valuable work done by one of his colleagues in this direction.

When any portion of lining is left, except when the cyst is opened into the nose, the flaps are invaginated and epithelium grows in from the edges, as is well known. A small number of cases of malignant changes in cyst linings have been reported, although, in an experience of some hundreds of cysts, the writer has not personally observed such an occurrence. He appreciates the risk, however, and with the advent of better methods of cavity treatment he rarely leaves any lining by intent, although in large cysts complete removal sometimes leads to troublesome hæmorrhage or complications with the mandibular nerve which he may be allowed to describe on another occasion.

### THE TREATMENT OF CYST CAVITIES

In earlier years closure without drainage of any but small cysts was followed by some degree of infection or by incomplete regeneration. Gauze dressings were used and these, impregnated though they were with every known antiseptic, became foul within twenty-four hours and required frequent replacement. Obturators were used in large cysts after epithelialization had taken place.

When the sulphonamides became available, small non-infected cysts were packed with sterile Vaseline petroleum jelly mixed with sulphanilamide and sulphathiazole powder and closed without drainage. In large cysts, gauze impregnated with the same mixture was used after invagination of the flaps. This remained clean and comfortable for a week or more. One or two cases of nausea and skin eruption were observed when an undue amount of the drugs was used.

With the advent of penicillin the outlook changed again. Having avoided recurrences by removing the entire lining, it now became possible also to secure healing without drainage, even in secondarily infected cysts. For this purpose sterile Vaseline or some other medium, mixed with penicillin powder, was used. In small cysts healing was rapid, comfortable, and sound. In larger cysts, those with a capacity of from one to several drachms, healing was comfortable but the cavities were found not to consolidate satisfactorily. The volume of blood-clot proved to be too large to become organized effectively. Research workers early pointed out that penicillin has an anticoagulant effect and, in practice, this appeared to result in the persistence of cavities occupied by fluid although not necessarily clinically infected. Albucid and other pastes, with or without the admixture of penicillin, have been recovered by the writer, doubtless among others, a year or more after operation.

The latter disadvantage was minimized by the addition of thrombin powder, but the need for a substance to act as a matrix for organization became evident. Until fibrin foam became unobtainable, good results followed its use for this purpose. It was packed into the cavity after being soaked in penicillin and thrombin solutions. Oxidized cellulose, neutralized in sodium bicarbonate solution, was then tried as a substitute for fibrin foam, but its use was early abandoned as it appeared to result in irritation and delayed healing. It remains a valuable hæmostatic, but it is preferable not to seal it into cavities.

During the last year the writer has secured only a small amount of fibrin foam, from the United States, and gelatin sponge is at present being used. The results are good, although in a few cases the wound breaks down at some part of the suture line a few weeks later. Much has been gained by then, and irrigation has sufficed to complete the healing.

### CHEMOTHERAPY

The prophylactic use of penicillin is routine.

In non-complicated cases an initial intramuscular injection, shortly before operation, of 200,000 units, followed by the same dose twelve-hourly (or by 60,000 units four-hourly) for a further period of thirty-six hours has proved to be effective. Alternatively, penicillin "Distaquaine", one dose of 300,000 units daily, may be used.

If infection is active or is to be anticipated, or in the presence of any recent heart lesion (and especially in congenital heart disease), or in any systemic condition where an exacerbation is to be feared, the above doses are inadequate. In such cases an initial dose of 2,000,000 units of penicillin with procaine and aluminium stearate is used. As this preparation is absorbed more slowly, as well as excreted more slowly, it is usual to administer it approximately twenty-four hours before operation.

It is emphasized that the aids discussed do not make a careful surgical technique less important than before they were available.

Flaps should be large enough to afford adequate access to the field of operation and should be capable, whenever possible, of being returned to an undamaged table of bone. Gentle handling of the soft tissues by operator and assistant, the careful but decisive removal of bone, the elimination of rough edges—or of thin edges where compact bone is involved—these are measures which are well repaid. When the operation is completed the surgeon and the anæsthetist take their leave, but postoperative pain can be slow to follow suit.


## PREVIEW

No. 6 FEBRUARY

Periodontosis: A Review — *R. D. Emslie, B.D.S. Lond., L.D.S. R.C.S. Eng.*

The Outline of the Full Denture — *R. J. Wheatley, L.D.S.*

Cleft Palate — *Michael C. Oldfield, M.B.E., D.M., M.Ch. Oxon., F.R.C.S.*

Joints of Steel — *Ernest A. Schoolden*

Illustrated Hints — National Health Service Notes — Society Notes

Abstracts — Book Reviews

DENTURE DESIGN CHART No. 3

It is with pleasure that the DENTAL PRACTITIONER announces that it will in future be including the *Proceedings* of the British Society of Periodontology

# OBSERVATIONS ON A FEW TREATED ORTHODONTIC CASES

By **W. TREVOR JOHNSON**, L.D.S. R.C.S. Eng.

*Lecturer in Orthodontics, University of Bristol Dental School*

THE cases to be described are selected as examples of conditions commonly arising in practice. In most of them removable appliances with Visick's (1948) cribs and spurs have been used. The deciduous molars are the best shaped teeth for this device, and, failing these, the premolars.

## CASE RECORDS

The first case, No. 613, is one of three showing different forms of "cross-bite". *Fig.* 1 is a frontal view of models of the child, a female, taken at 14 years 2 months and 15 years 2 months, before and after treatment, and *Fig.* 2 is a morsal view of the same models. $\overline{|5}$ and $\overline{3|}$ are shut out of the arch, $\underline{|2}$ has insufficient room, and is locked lingually when the jaws are closed. The arches are too small for the teeth, and the disturbance arising from this disproportion in size is increased by migration which has followed the premature loss of deciduous cheek teeth. Radiographs indicate that the apices of $\underline{3|3}$ are favourably placed for their crowns to be moved distally. $\underline{4|4}$ were extracted and the plate designed first to move $\underline{3|3}$ distally and lingually, and then $\underline{|2}$ labially. *Fig.* 3 is a line drawing of the appliance used. The two 1·00-mm. labial arms carrying 0·30-mm. springs for the canines (Friel and McKeag, 1938) are, for convenience in illustration, drawn flat with the occlusal plane, but in practice are bent upwards into the sulcus. There are two satisfactory ways of attaching these fine springs and both are shown. The left is attached by welding, and the right by taking two firm turns of the spring wire on each side of a well-defined right-angle bend in the 1·00-mm. wire (Rix, 1938). The distal end of the looped spring rests on the mediolabial slope of the canine, and the descending arm of the 1·00-mm. wire is in contact with its distolabial slope. This prevents rotation and guides the tooth lingually. $\underline{|2}$ is moved labially by a beam spring of about 0·55 mm. diameter held gingivally by one or more looped guards of 0·90-mm. wire. It is to be noted that the twist in the spring is located about 4 mm. from the point of its insertion in the acrylic resin and this is to facilitate the pulling over of the spring to the left as $\underline{|2}$ moves labially. When a stage of treatment is reached with $\underline{|3}$ moved far enough distally, an impression with the plate in the mouth is taken and the occlusal surfaces of the cheek teeth covered

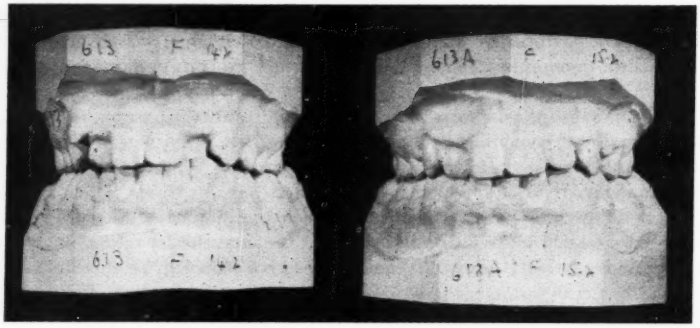



*Fig.* 1.—*Case* No. 613. Frontal view of models taken before and after treatment.

with resin. The "gagging" is carefully trimmed down in the mouth until $\underline{|2}$ is just free to move labially. It is anticipated that the gap between $\underline{|3}$ and $\underline{|4}$ will close.

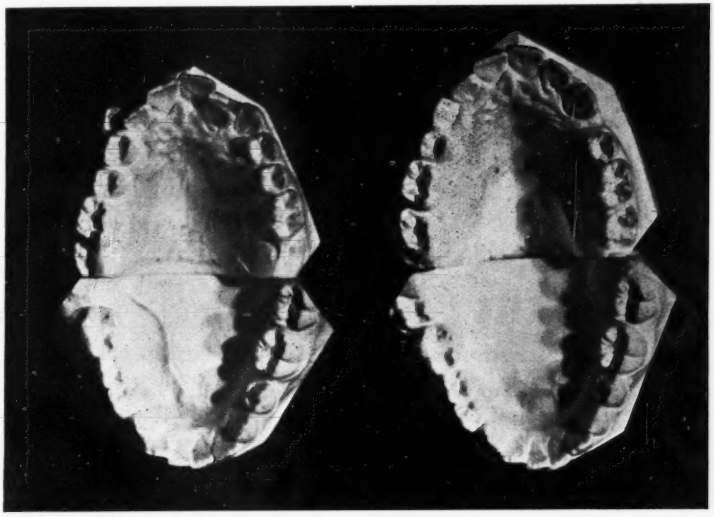


*Fig.* 2.—Morsal views of same models as in *Fig.* 1.

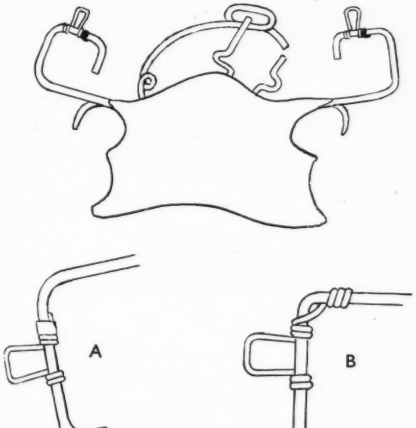



*Fig.* 3.—The appliance used in *Case* No. 613. The two methods of attaching the fine springs are shown in the lower drawing: A, shows attachment by welding; B, by turns about a right-angled bend.

This form of labial spring for the canine can be used soon after the tooth begins to erupt, and is very satisfactory for use in both fixed and removable appliances. Also, an upper plate for moving teeth over the bite has been found more satisfactory than a lower plate with an inclined plane, but the latter is sometimes used in exceptional circumstances.

The next case (No. 1016) is a much younger child, a female, and *Fig.* 4 is a right lateral view of models taken at 4 years 1 month and 4 years 9 months. Genetic influences were suspected, but the ready response to simple treatment made this doubtful. An upper plate was used with right and left lingual springs and two or three guards to move the anterior teeth labially. The cheek teeth were covered, as in the last case. The insertion of "U" loops in the guards is more necessary when several teeth are to be moved, as they call for lengthening to engage the spring as it travels with the teeth labially.

When lingually locked teeth have been moved labially a vertical overlap of say 2·00 or 3·00 mm. over the lower incisors is

necessary for their retention, and when this is absent it is customary to cut away the "gagging" part of the plate and instruct the patient to wear the plate at nights and return for observation. If an overlap does not develop, relapse is likely to occur.

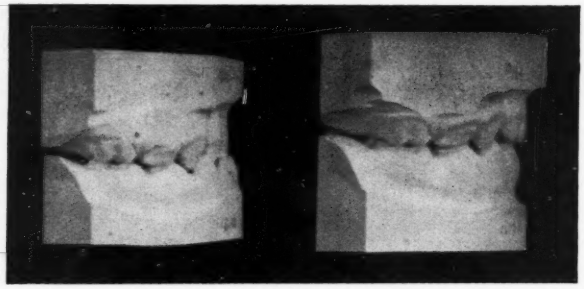


*Fig.* 4.—*Case* No. 1016. Right lateral views of models taken at $4\frac{1}{12}$ and $4\frac{9}{12}$ years.

*Figs.* 5 and 6 (*Cases* No. 838 and No. 839) are lateral views of the models of a sister at 4 years and 4 years 8 months, and of a brother at 3 years and 3 years 6 months respectively. The arches of both children are normally related anteroposteriorly, and very well developed for the age. It will be seen that the "cross-bite" is in the deciduous molar region and on the right side in the girl, and on the left in the boy. The severity of this does not show up well in the photographs. In both cases the lingual surfaces of the first and second upper deciduous molars engage the buccal surfaces of the first and second lower deciduous molars. The mandible does not move to the right or left as the jaws close, as often happens in these cases, and the disturbance is, therefore, confined to a displacement of the upper deciduous molars buccally and the lower deciduous molars lingually. It was decided to use lower expansion plates and to extend the acrylic resin to cover the occlusal surfaces of all the teeth. The material was progressively trimmed down to allow the buccally placed upper deciduous molars to fall lingually as the lower arch widened. This treatment was quite successful in the boy, but in his sister the second upper deciduous molar persisted in lengthening and was moved still further buccally as the lower arch widened. This difficulty was overcome by fitting a band on $\overline{E}|$ with a hook on the lingual side, and a band on $\underline{E}|$ with a hook on the labial side and an elastic used between them continuously. This method of treating "cross-bite" in individual opposing teeth

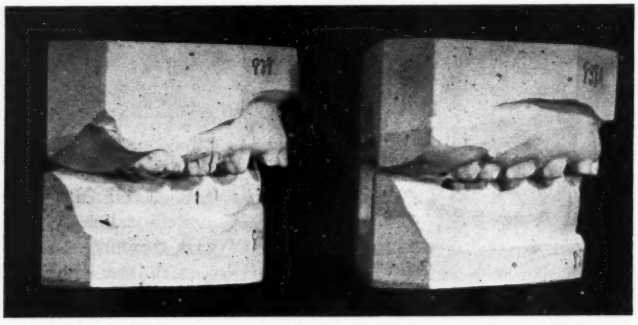


*Fig.* 5.—*Case* No. 838. Right lateral view of models at 4 years and $4\frac{8}{12}$ years.

works better with no lingual or labial arches attached and is remarkably successful even with older children of 12 years or more. It is

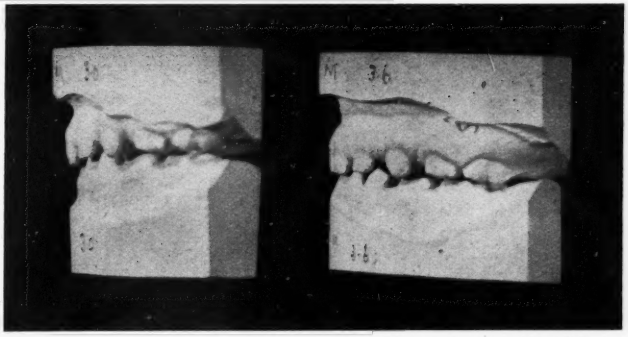


*Fig.* 6—*Case* No. 839. Left lateral views of models at 3 years and $3\frac{6}{12}$ years.

likely that the pressure from biting on the elastic depresses the teeth and facilitates the "jumping" of the bite. As a general rule, no plate is used.

In *Case* No. 886 the upper canine is locked lingually and inclined medially, and *Figs.*

crypt. It was decided that with $\underline{|4}$ extracted $\underline{|3}$ could be moved into a satisfactory position in the arch, and that the gap between $\underline{|3}$ and $\underline{|5}$ would close, or nearly so. A plate was made with a lingual spring, and guard, to move $\underline{|3}$ distally. When it had moved far enough an impression with the plate in the mouth was taken, a spring added to move it labially, and the cheek teeth covered with acrylic resin to gag the bite. It was noted in the final

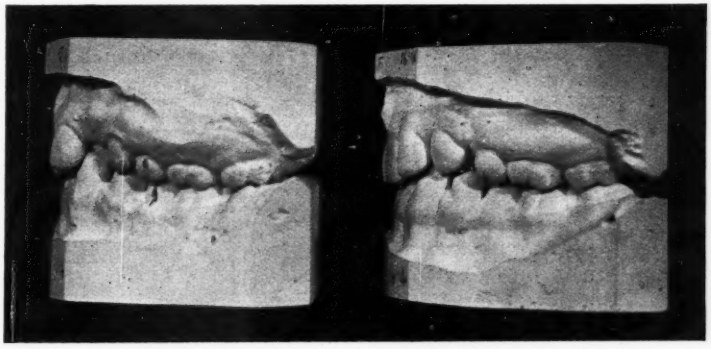


*Fig.* 7.—*Case* No. 886. Left lateral views of the models at $15\frac{4}{12}$ years and $16\frac{4}{12}$ years.

7 and 8 are left lateral and morsal views of the models at 15 years 4 months and 16 years 4 months. The patient is a female. The lower is slightly small, is a fraction post-normal on the right and a little more so on the left. The vertical overbite is greater than average. *Fig.* 9 is from a radiograph and the apex of $\underline{|3}$ is seen to be well back, and $\underline{|8}$ present in the

models that the centre of the upper has moved 2·00 mm. to the left. This migration of teeth to the side of the extraction varies in amount. It increases with the degree of overcrowding, and decreases with the age of the patient. In a case of insufficient space in the arches for both canines, it is always a good plan to have in mind this migration and consider if the

extraction of one premolar will suffice. There is very often a better chance of all gaps closing if one premolar is extracted instead of two.

resin were made twice. The depression of teeth in this way does not appear to be of any great clinical importance as the teeth very

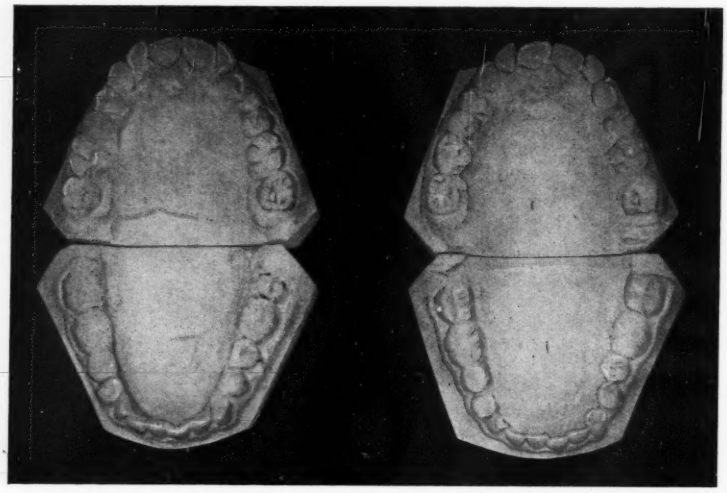


*Fig.* 8.—Morsal views of same models as in *Fig.* 7.

When the back teeth are covered to "gag" the bite in older patients there is a much more rapid depression of the teeth covered than in younger patients, and no doubt this is well

quickly regain their normal height when the covering is removed.

Anterior open bite in young children is often associated with an abnormal habit,

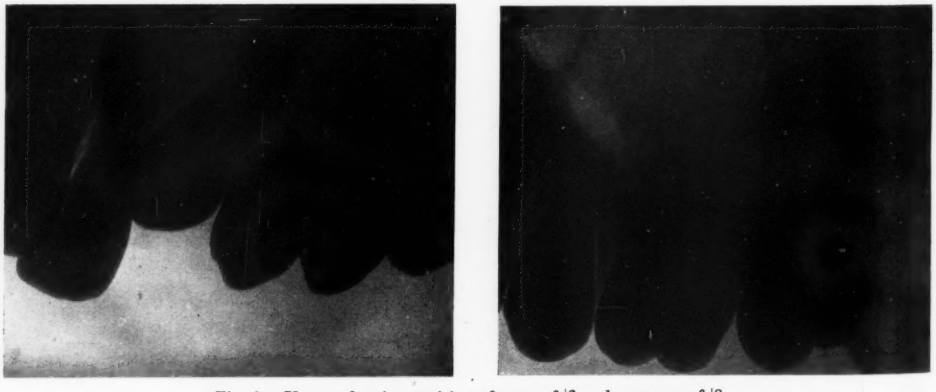


*Fig.* 9.—X-rays showing position of apex of $\underline{|3}$ and presence of $\underline{|8}$.

explained by the greater muscle pressure exerted and the longer time taken over treatment. In the above case, additions of acrylic

usually the sucking of fingers or thumb, and if the habit is broken early, the tendency is for the disturbance in the arches to improve

or return to normal; but sometimes a gap persists, and it is then difficult to decide if a thrusting of the tongue into the gap is the apparent, and the space between the upper and the lower incisors was less, both vertically and horizontally. At this stage, if the case had

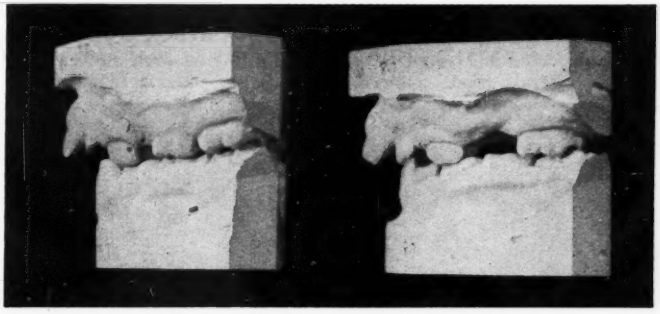
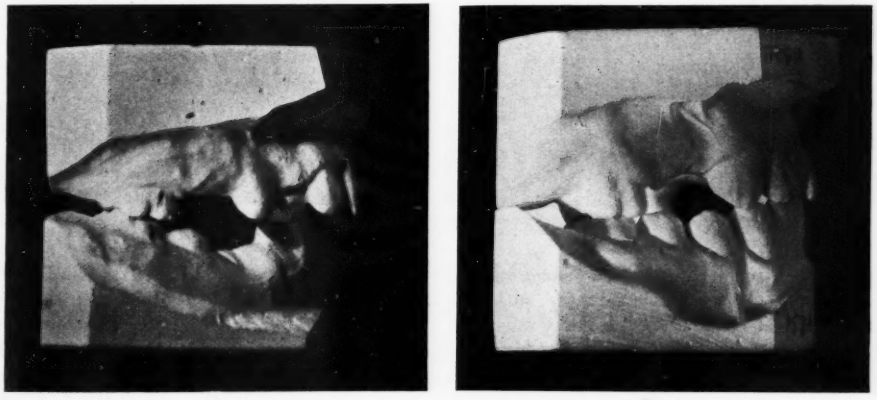


*Fig.* 10.—*Case* No. 1140. Left lateral views of models at $6\frac{7}{12}$ years and $7\frac{7}{12}$ years.

influencing factor, or if heredity is the dominant. *Fig.* 10 (*Case* No. 1140), a female child, shows a left lateral view of models at 6 years 7 months and 7 years 7 months. The lower

been one of normal arch relationship with no other abnormality calling for correction, it would be good treatment to trim the Monoblock to permit of normal growth changes taking



A B

*Fig.* 11.—*Case* No. 758. Right lateral views of models at $9\frac{11}{12}$ years and 11 years.

arch is a fraction post-normal on the right, and a full cusp on the left. In the first models there is open-bite. The orofacial muscle pattern is immature and atonic (Ballard and Evans, 1948), with a finger habit persisting. A "Monoblock" or Andreson plate was fitted (Pedley, 1947). At the end of a year the habit had ceased, tonus had become more

place and continue treatment with it; but with the post-normal arch relationship, and disparity in relationship of the upper and lower incisors, a change in method of treatment is called for. The Monoblock was made with a "forward" bite to encourage change in arch relationship, and it will be seen that, although it has been worn continuously for one year, no

change in this respect has taken place. The writer prefers to treat Class II, Division 1, cases with fixed appliances and intermaxillary traction for from one to two years, and then to fit a Monoblock to complete the treatment—up to three years in all. He has not found that the Monoblock or oral screen in his hands can be relied upon to bring about a change in arch relationship in any particular case, although some respond favourably. A few young children have successfully worn a Monoblock, but with one exception there has been no response. This is not as one would hope for and expect.

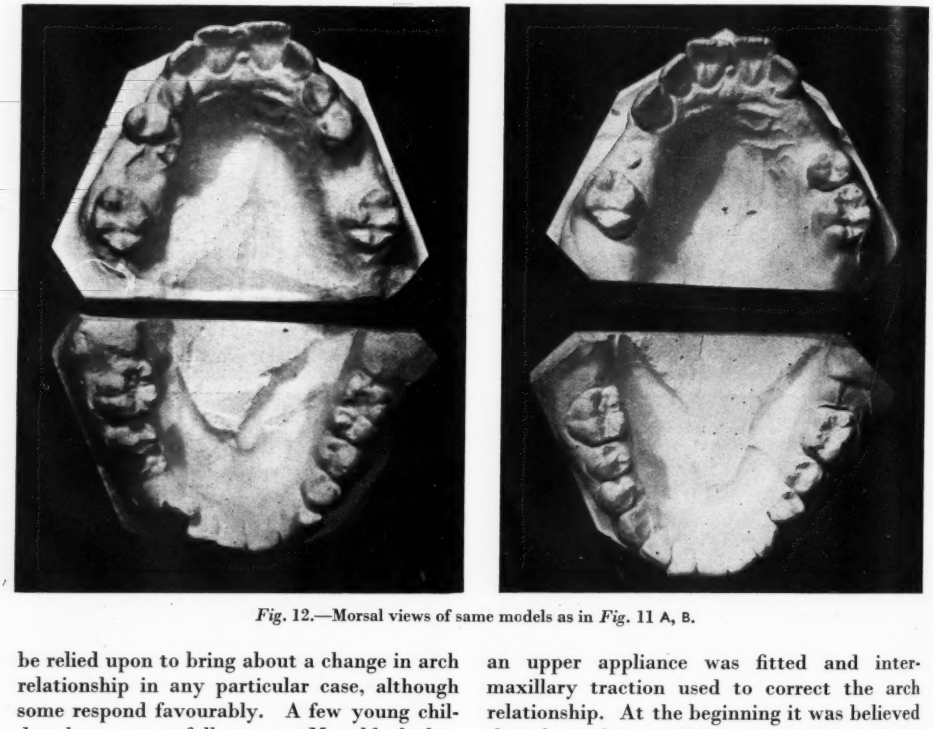


*Fig.* 12.—Morsal views of same models as in *Fig.* 11 A, B.

*Case* No. 758 is a female child and an example of post-normal relation of the lower arch with the deformity increased by migration of teeth following premature loss of the lower deciduous molars. *Figs.* 11, 12 are right lateral and morsal views of the models taken at 9 years 11 months and 11 years. In the first models the centre of the lower is 5·0 mm. to the right and the space between the medial surface of the permanent right lower first molar and the permanent right lower lateral incisor is 5·0 mm. less than the distance between the two corresponding teeth on the left side. The space lost on the right was first regained by a fixed appliance with a lingual arch and coil spring, and then an upper appliance was fitted and intermaxillary traction used to correct the arch relationship. At the beginning it was believed that the arches would be too small for all the teeth to be kept and $\underline{4}|\underline{4}$ were extracted. It now appears that the removal of $\underline{4}|$ only would have sufficed, but this is not quite certain yet, as no opportunity has so far been given for the lower arch to relapse. But probably a mistake has been made.

It is not yet proven that space lost in arches can in all cases be permanently regained without transferring the deficiency from one part to another in the same arch. The disturbance which may follow the loss of say $\overline{E}|$ appears to be:—

*a.* A medial inclination of $\overline{6}|$.

*b.* A cessation or slowing up of the normal forward movement of the teeth medial to the site of the lost teeth. With no compensating premature loss in the upper, the forward growth continues and the upper teeth become more labial to the lower teeth in the incisor region and the vertical overlap tends to increase.

*c.* In Class II, Division 1 cases this increased disharmony in the relationship of the incisors may encourage the lower lip to rest under the upper incisors and pressure in swallowing lead to increased labial inclination of the upper incisors and increased lingual inclination of the lower incisors..

*d.* In Class II, Division 2 cases the lower incisors are again inclined to fall lingually, particularly when $\overline{C}|\overline{C}$ are extracted or shed early. The upper incisors follow them and the "close-bite" is increased.

The best that can be hoped for from treatment is that the space lost can be fully regained, resulting in as good or as bad an alinement of the teeth as there would have been had there been no loss; but it is probable that what is obtained is rather short of this, and that the greater the disproportion in size of teeth and arches, the greater becomes the disturbance which follows premature loss and the greater our difficulty in regaining it. The regaining of lost space is mostly called for in the lower jaw, and particularly in the treatment of Class II, Divisions 1 and 2, and close-bite, cases. In these, even if only part of the space is regained, it can sometimes bring the lower teeth to occlude with the upper ones instead of the gum behind them. Then, although there may be some imbrication of the lower teeth, it may be the lesser of the two evils.

## SUMMARY

The purpose of this paper is to bring forward a few types of malocclusion which can be expected to give good results. A few speculative observations have been made, but the views put forward need further investigation before they are accepted.

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## FEDERATION DENTAIRE INTERNATIONALE

### XIth International Dental Congress, London, July, 1952

THE Organizing Committee have secured for the International Dental Congress to be held in London from July 19 to 26, 1952, at the Royal Festival Hall. This hall is a spacious modern building of unique design, constructed for the Festival of Britain, and it has its own special transport facilities linked up with the buses, underground, and railways. Situated on the South Bank of the Thames with extensive promenades on the upper floors, it overlooks the river, providing a view of some of the most famous buildings of London. Lawns run down to the water and there is a spacious restaurant together with many other amenities that promise to provide for this Congress a background which will make it a memorable event in the history of International Dentistry.

A section of the Congress that will be of interest to many members of the profession is the public exhibition of Oral Hygiene, in which it is intended to show the progress of this important work by means of films, models, and posters. The Exhibition Committee would welcome the views or contributions of any one specializing in this important branch.

# NEW ZEALAND SCHOOL DENTAL NURSES SCHEME

By **C. H. I. MILLAR**, L.D.S. V.U. Manc.

*Assistant Lecturer in Children's Dentistry, Victoria University of Manchester*

THE unanimously favourable report of the United Kingdom Dental Mission on New Zealand School Dental Nurses, which has recently been presented to the Government, together with the friendly reception of the Report in the *British Dental Journal*, represent a considerable revolution in professional opinion on the subject. As recently as 1944 the Committee which investigated the problem of dental man-power, under the Chairmanship of Lord Teviot, disagreed upon the advisability of allowing ancillary workers to perform certain types of simple dental operation, only one member of the Committee signing a minority report advocating such a step. Probably the first two years of the National Health Service have revealed to profession, public, and government alike, the wholly inadequate size of the profession for the tasks the community is now requiring it to fulfil.

The problem of providing adequate dental treatment for the school population alone is so vast and so urgent as to appear at first sight insoluble if all work is to be carried out by fully qualified dental surgeons, of whom there are only about 10,000 available for the whole of the country. There are roughly 6½ million children in the United Kingdom between 4 years of age (at which age much conservative work is already requiring to be done) and the school-leaving age of 15. We know from surveys conducted in various parts of the country since the war that at least 80 per cent of these children, about 5½ million, will require some form of continuous dental care. Our long-term aim should be to create a children's dental service of so high a quality as to inspire the public with confidence and trust. We could then expect that between 90 and 100 per cent of the children requiring treatment would wish to receive it under the scheme, which would then have to deal with between 4½ and 5 million children.

It is hardly surprising that, face to face with a problem of such proportions, the New Zealand scheme should seem attractive to the Government and to many members of the dental profession.

Under this scheme girls with School Certificate qualifications are given two years' intensive training in the scaling, cleaning, filling, and extraction of deciduous and permanent teeth for children and a wide grounding in anatomy, physiology, pathology, hygiene, child health, etc. At the end of this training, having proved her proficiency and theoretical knowledge by examination, the trainee receives a certificate appointing her a "School Dental Nurse in the employment of, and under supervision of, the Department of Health, and as such is authorized to give such treatment, instruction, and advice relating to the dental care of children as the Department may from time to time direct". She is then posted to a clinic in one of the six districts into which the country is divided for the administration of the scheme, where she carries out routine treatment under the supervision of the Principal Dental Officer responsible for the district.

Each Principal Dental Officer is responsible for the work of about 80 dental nurses, and it is his duty to visit each nurse in her clinic at least once a term and to make a detailed report to the Department of Health. He is assisted by a Dental Nurse Inspector, who also makes three visits a year to each dental nurse, to supervise organization and administration of the clinics.

To many dentists who might otherwise be favourably disposed towards the introduction of a similar scheme here, this degree of supervision of partially trained personnel seems quite inadequate to prevent deterioration of standards of treatment. The dental nurse is deliberately not given a professional training and yet, in the day-to-day treatment of her patients and running of her clinic, she is virtually an independent dental practitioner,

no longer an ancillary worker, as was envisaged in the first place. This is a situation fraught with real dangers for the public and implies dilution of the dental profession by partially trained members, which it is in the interest of the community, as much as of the profession, to prevent.

When the New Zealand scheme was first launched, following a proposal by Sir Thomas Hunter, the functions of the dental nurse were strictly limited to general oral hygiene, the filling and extraction of deciduous teeth, and the simplest type of filling in the first permanent molar teeth, under professional supervision. This field has been extended, step by step, until now the dental nurse carries out complete treatment, including the filling and extraction of all deciduous and permanent teeth for all children of school age and for certain pre-school age groups. It is now being suggested that her duties should be further extended to include adolescents. This trend illustrates perhaps the most serious criticism of the scheme, that whatever may be the intentions of the founders of the scheme, of the limitations to the duties of the nurse accepted by the profession at the outset, her field of operations might well be inadvisedly extended beyond these limits, without reference to parliamentary or professional opinion.

Neither of these criticisms is an objection in principle to the New Zealand scheme and each could be avoided by suitably framing the amendments to the Dentists' Act, by which a similar scheme could be legalized in this country.

It should not prove impossible to lay down by statute the precise duties of ancillary dental workers, so that full public discussions should precede any extension of these duties.

The problem of close supervision of the work of the dental nurses, by qualified dental surgeons, is mainly a matter of organization, but it is, none the less, a point upon which the public should insist from the outset. There are at present 825 dental surgeons in the school dental services of the United Kingdom, and it is reasonable to suppose that this number might be increased to a thousand by the inducement of better salaries and conditions of work. In New Zealand each dental nurse cares for 500 children and a similarly trained nurse in the United Kingdom could probably look after at least 750 children, allowing for the lesser incidence of dental decay amongst British children, so that 6000 dental nurses could provide treatment for the estimated $4\frac{1}{2}$–5 million children who would require and desire it. This would give a proportion of 1 dental surgeon to 6 dental nurses (in New Zealand the ratio is 1 : 80) and it seems not beyond the bounds of ingenuity to organize dental teams, on the basis of one surgeon supervising six nurses, throughout the country. In this way a satisfactory degree of close professional supervision could be maintained, sufficient to protect the public against the dangers implicit in dilution of the profession.

When one contemplates the difficulties of recruiting and training 6000 suitable candidates for the scheme, one realizes that such a scheme can only be regarded as a long-term solution of this urgent problem. The expense of training so many nurses and of equipping clinics in which they can work would be very great indeed. In considering this or any alternative scheme, the factor of loss of trained personnel from the Service cannot be overlooked. A qualified dental surgeon can be relied upon to give many years of service to the community, whereas among dental nurses in New Zealand as many as 10 per cent retire each year for reasons of ill health or marriage. This represents a considerable financial loss and might be a deciding factor against the adoption of dental nurses in this country.

Whether or not the community values highly enough the dental health of its children to divert sufficient of our strictly limited national resources from other purposes to that of setting up an adequate children's dental service, is a purely political decision which the country as a whole must take. The dental profession can do no more than emphasize the safeguards that are essential in the public interest if a dental nurses scheme similar to that which has been operating for nearly thirty years in New Zealand is to be the chosen method, and to counsel the very widest public discussion before the first steps are taken.

# PARLIAMENTARY NEWS

## Questions and Answers

### Dental Officers in the Services

Wing Commander Hulbert (C., Stockport) asked the Minister of Defence whether he could now make a statement on the emoluments of medical and dental officers in the Services. (*T., Nov.* 28.)

Mr. Shinwell, in a written reply, said: Increases in pay have been approved for medical and dental officers of the three Services. In addition there will be increases in specialist pay for medical and dental specialists in the Royal Navy and Army; in the Royal Air Force specialist qualifications will continue to be recognized by a system of accelerated promotion. The increased rates will not apply to National Service Officers until they have completed eighteen months' whole-time service. The increases and new rates which will take effect from Sept. 1, 1950, are as follows:—

**BASIC PAY**

| Rank (Only Army Ranks Shown) | Increases | | New Rates | | | |
|---|---|---|---|---|---|---|
| | | | *Medical Officers* | | *Dental Officers* | |
| | Daily | Annual | Daily | Annual | Daily | Annual |
| | s. d. | £ | s. d. | £ | s. d. | £ |
| Lieutenant .. | 4 6 | 82 | 26 6 | 484 | 24 6 | 447 |
| Captain .. | 4 6 | 82 | 32 6 | 593 | 29 6 | 538 |
| After 2 years | 4 6 | 82 | 35 6 | 648 | 32 6 | 593 |
| ,, 3 ,, | 7 0 | 128 | 38 0 | 694 | 35 0 | 639 |
| ,, 4 ,, | 7 0 | 128 | 41 0 | 748 | 38 0 | 694 |
| ,, 6 ,, | 7 0 | 128 | 44 0 | 803 | 41 0 | 748 |
| Major .. | 7 0 | 128 | 50 0 | 913 | 47 0 | 858 |
| After 2 years | 7 0 | 128 | 53 0 | 967 | 50 0 | 913 |
| ,, 4 ,, | 7 0 | 128 | 56 0 | 1022 | 53 0 | 967 |
| ,, 6 ,, | 7 0 | 128 | 59 0 | 1077 | 56 0 | 1022 |
| Lieut.-Colonel .. | 8 0 | 146 | 66 0 | 1205 | 63 0 | 1150 |
| After 2 years | 8 0 | 146 | 69 0 | 1259 | 66 0 | 1205 |
| ,, 4 ,, | 8 0 | 146 | 72 0 | 1314 | 69 0 | 1259 |
| ,, 6 ,, | 8 0 | 146 | 75 0 | 1369 | 72 0 | 1314 |
| ,, 8 ,, | 8 0 | 146 | 78 0 | 1424 | 75 0 | 1369 |
| Colonel .. | 10 0 | 183 | 85 0 | 1551 | 82 0 | 1497 |
| After 2 years | 10 0 | 183 | 88 0 | 1606 | 85 0 | 1551 |
| ,, 4 ,, | 10 0 | 183 | 91 0 | 1661 | 88 0 | 1606 |
| ,, 6 ,, | 10 0 | 183 | 94 0 | 1716 | 91 0 | 1661 |
| Brigadier .. | 10 0 | 183 | 97 0 | 1770 | 94 0 | 1716 |
| Major-General .. | 10 0 | 183 | 120 0 | 2190 | 120 0 | 2190 |
| Lieut.-General .. | 15 0 | 274 | 150 0 | 2738 | — | — |

**SPECIALIST PAY**

| | Royal Navy | | Army | |
|---|---|---|---|---|
| | *Increase* | *New Daily Rates* | *Increase* | *New Daily Rates* |
| | s. d. | s. d. | s. d. | s. d. |
| Graded specialist .. | — | 5 0 | — | 4 0 |
| Full specialist .. .. | 3 0 a day | 8 0 | 4 0 a day | 8 0 |

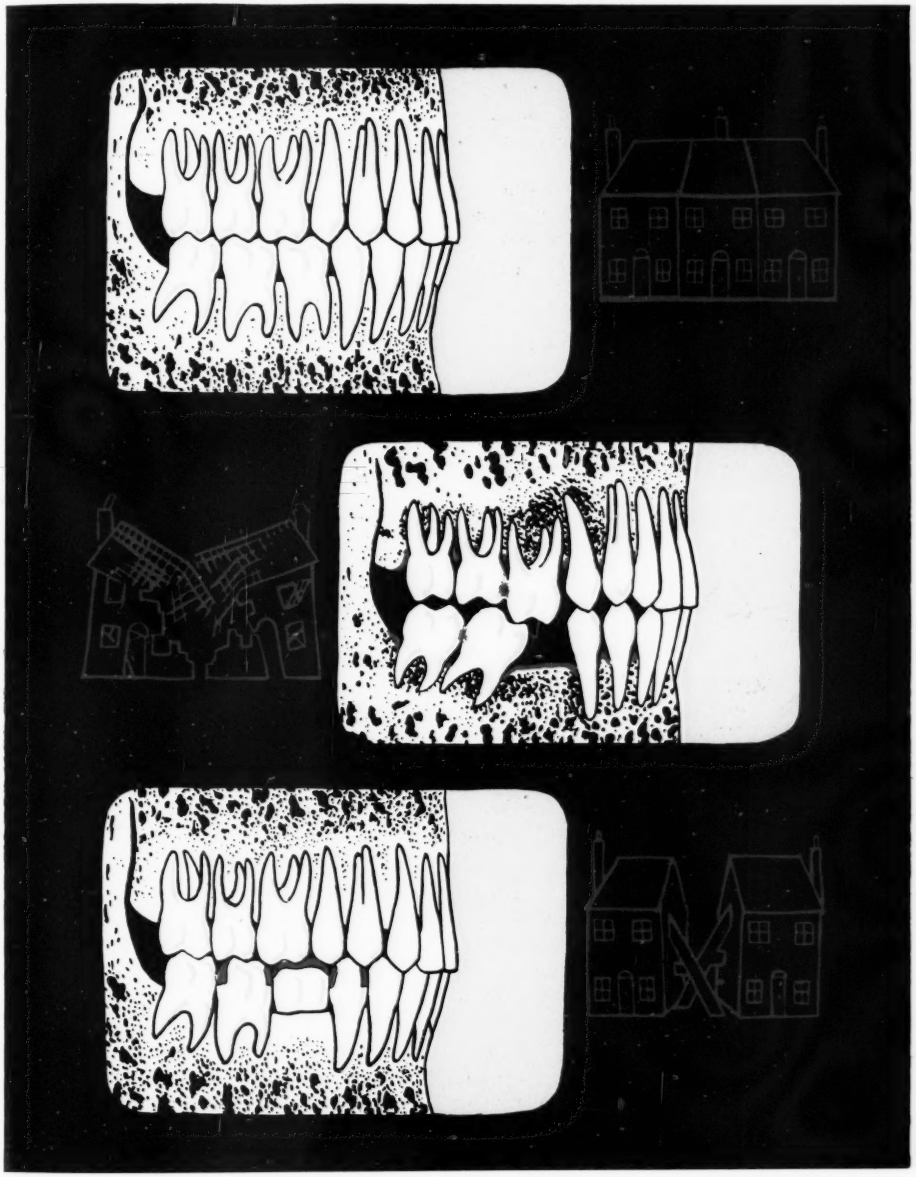
### Training of Disabled as Mechanics

Mr. Baird (Lab., Wolverhampton, N.E.) asked the Minister of Labour, in regard to the scheme which he has sponsored for the training of disabled men as dental mechanics, what is the length of training given; and how far had the scheme the support of the employers' organization and the appropriate trade unions. (*Th., Nov.* 30.)

Mr. George Isaacs, in a written reply, said: This course, which is usually one of eighteen months, but may be extended up to two years in suitable cases, was arranged in 1946 in consultation with the appropriate employers' organizations and trade unions.

COLOURED CHART No. 3

# MAINTAINING NORMAL OCCLUSION



The normal occlusion is shown in the top illustration. The middle picture shows what happens when one tooth is lost; the teeth drift, gums become inflamed, caries starts, and multiple extractions may be necessary. By the construction of a bridge the resultant damage can be prevented, as in the third picture.

### School Dentists in Norfolk

Mr. Dye (Lab., Norfolk, S.W.) asked the Minister of Education how many school dentists have been at work in Norfolk this term; and what proportion of the pupils are receiving dental attention. (*Th.*, *Nov.* 30.)

Mr. Tomlinson: Five, sir. I understand that nearly half the school population of the area are receiving regular dental inspection and treatment.

Mr. Dye: What about the other half? (Laughter.)

Mr. Tomlinson: Emergency treatment is available for the greater part of the other half, and where that can be increased we are attempting to increase it.

Mr. Iain Macleod (C., Enfield, W.) asked the Minister whether there had been any response in Norfolk or elsewhere to the circular of three or four months ago, issued by the British Dental Association, urging more groups of dentists to take part in this work on a part-time basis.

Mr. Tomlinson said there had been some result, but he could not give details.

### School Dentists in Northamptonshire

Mr. Mitchison (Lab., Kettering) asked the Minister of Education how many dentists are required for the School Dental Service in Northants; how many are now serving in it; and what steps he proposed to take to improve services by the use of mobile dental clinics or otherwise. (*Th.*, *Nov.* 30.)

Mr. Tomlinson, in a written reply, said: I understand that the local education authority have approved an establishment of seven dental officers and that they at present have five. The only way to remedy the present deficiencies of the School Dental Service is to have more school dentists, and I hope that the present negotiations on the Dental Whitley Council will result in a satisfactory settlement which will subsequently improve the position.

### Installation of a Telephone

Mr. Turton (C., Thirsk and Walton) asked the Postmaster-General whether he was aware that Mr. I. Farrar, of 74, Rawcliffe Lane, Clifton, York, a dental surgeon under the National Health Service, had been for five years an unsuccessful applicant for a telephone; that the operation of the National Health Service in this neighbourhood was being prejudiced by this failure on the part of the Post Office; and what action he now proposed to take to remedy this situation. (*W.*, *Dec.* 13.)

The Postmaster-General, in a written reply, said: As the hon. member was informed on Nov. 23, service is now being installed at Mr. Farrar's home, and I hope that the installation will be completed by the end of this month. Mr. Farrar has had a telephone at his surgery.

### Monopolies Commission's Report

Mrs. Ganley (Lab., Battersea, S.) asked the President of the Board of Trade when the Monopolies Commission's Report on Dental Goods will be published; and if he will make a statement about the Report. (*Th.*, *Dec.* 14.)

Mr. Harold Wilson: The Report was published to-day. With my hon. friend's permission, I will circulate a statement on it in the Official Report, but I should like to take this opportunity of thanking the Commission for what is, I think, a very thorough and valuable piece of work. I hope all hon. members will take an early opportunity of studying it.

The following is the statement:—

The Report is a very detailed document, and I cannot do it justice in a short space. I will, however, outline the Commission's main conclusions.

On the factual side of their investigation, the Commission report that the conditions to which the Monopolies Act applies do prevail in the dental goods industry on two grounds: First, the Association of Dental Manufacturers and Traders of the United Kingdom is an association of persons who control more than one-third of the supply of dental goods and who so act as to restrict competition. In fact, the Association controls about 90 per cent of the trade. Secondly, the group of companies headed by the Amalgamated Dental Company is a group of interconnected bodies corporate within the meaning of the Act and controls more than one-third of the supply of the goods.

I come next to the Commission's findings about the effect of these conditions on the public interest. As regards the Amalgamated Dental Company's group, the Commission find that "the group has used with moderation the great power which it has derived from its substantial hold on the market". Nevertheless, the Commission think that the prices of certain lines in which the group have a substantial monopoly have been unduly high and recommend that the group should reduce them. The Commission also criticize certain restrictive agreements made by the group and recommend that these should be reconsidered.

As regards the Association of Dental Manufacturers and Traders, the Commission take the view that the Association's use of exclusive dealing and the collective boycott as devices for enforcing resale price maintenance have had undesirable results in restricting entry into the industry, and for this reason, among others, are against the public interest. The Commission recommend that these practices should be prohibited in this industry.

I should mention that two members of the Commission make a reservation about this recommendation. They point out that, as is common knowledge, similar practices are carried on in other industries and that it is purely fortuitous that this industry should have been investigated first by the Commission. They suggest, therefore, that it would be wrong to enact *ad hoc* legislation against this industry, though they would not recommend that it should be exempted from any general legislation.

Various other rules and regulations of the A.D.M.T. are criticized in the Report, and the Commission recommend that the Association should review them.

I do not propose to say much now about the implementation of the Commission's recommendations. The first essential is that all concerned should now study the Report in detail and in particular, that the industry itself, towards whom several of the Commission's recommendations are directed, should consider very carefully how best to respond to the Commission's findings. I should perhaps mention that in so far as it may become necessary to invoke the remedial sections of the Act, which can, of course, be applied to individual cases, the appropriate authority in this instance will be my right hon. friend, the Minister of Health.

# NATIONAL HEALTH SERVICE NOTES

## Appointment of Consultants, Senior Hospital Medical Officers, and Senior Hospital Dental Officers

### Advisory Appointments Committees

The Minister has been reviewing the authority given to Boards to pay fees to members of Advisory Appointments Committees.

In the light of his review the Minister is of opinion that, with the exception mentioned below, it is not appropriate that members of these Committees should receive fees (bearing in mind that members of Boards themselves and their normal committees are not entitled to be paid fees). He is of opinion, however, that it is reasonable that these members should be able to claim compensation for any loss of earnings (or for any additional expenses which they would not have incurred had they not served as members), subject to the same conditions and limitations as are applied to members of Boards and their committees generally by Statutory Instrument 1949, No. 2340; and he would be glad if Boards would in future proceed on this basis.

The exception is a consultant appointed from outside the Region to serve on an Advisory Appointments Committee in the case of a post at a non-teaching hospital or on a joint Advisory Appointments Committee set up where it is proposed to appoint the same person in both a teaching and non-teaching hospital. This member, and this member only, may be remunerated by a Board at the rate of 7 guineas a day or 4 guineas for a half-day, provided that he is not in whole-time employment and continuing to draw his full salary from his employment.

### Removal of Disqualification

THE disqualification imposed by Section 42 (8) of the National Health Service Act, 1946, upon the following dentist has now been terminated:—

Mr. A. Voss, 367, Cheetham Hill Road, Manchester, 8.

### National Formulary, 1949: Second Amendment, 1950

THE Amendment came into force on Jan. 1, 1951. The chief change is the addition of "Tabellæ Dexamphetamine Sulphatis" to the Formulary. The supply of these tablets coloured is permissive.

## SOCIETY NOTES

### THE NATIONAL JOINT COUNCIL FOR THE CRAFT OF DENTAL TECHNICIANS

Extract from the report of the Secretary, Mr. G. Beardsworth, O.B.E., J.P., U.S.D.A.W. Chief Organizing Officer, to the meeting of the Education Advisory Committee of the National Joint Council for the Craft of the Dental Technician, held in London on Nov. 16, 1950.

A report was given at the previous meeting summarizing classes established and held in the 1948–9 season. With the exception of *Plymouth*, where classes are no longer in existence, classes are continuing in the following centres: London, Liverpool, Manchester, Sheffield, Edinburgh, Bristol, Bradford, Leicester, Newcastle, Cardiff, Dundee, Aberdeen, Northampton, York, Southend, Motherwell, Birmingham, Nottingham, Southampton, Blackpool. Added since 1949: Leeds, Glasgow, Preston.

A summary of developments recently is given below:—

*Bedford*: The local Union branch made an approach to the Education Authorities but was unable to make any headway. Apparently independently, a later approach was made by the local Dental Committee and the two bodies have been put into touch with each other.

*Blackpool*: *See* Preston.

*Bournemouth*: The local Education Committee has not been helpful, although local approaches have been made by the Union branch. The branch has been advised to try to arrange for its students to attend Southampton classes in the meantime and claim their travelling fares from the Bournemouth authorities.

*Cambridge*: There have been no developments in this important centre, but Mr. Threlfall has been asked to give his aid.

*Cardiff*: Successful classes have been held up to Intermediate standard, but now difficulties are being experienced over the provision of suitable accommodation and equipment for the final years. Naturally, the Intermediate students are feeling a good deal of frustration at being unable to continue to the final examination.

*Coventry*: No developments, although this town has sufficient population to justify the establishment of classes at least to Intermediate level and final students could go to Birmingham.

*Glasgow*: After several years of effort, substantial progress can be reported here. The Education authorities have decided to spend some £4000 on equipping a dental technician laboratory and an active Joint Training Committee is in existence.

*Guildford*: So far all efforts by the Union branch to secure a class in the practical part of the syllabus have failed. The assistance of the B.D.A. has been sought in an endeavour to have a Joint Training Committee established.

*Hull*: No progress.

*Ipswich*: Discussions have been proceeding to see if a Joint Training Committee can be established.

*Lanarkshire*: Covered by the same Joint Committee as Glasgow. Classes are also being established to cover this area.

*Luton*: A general inquiry has been received from the Union branch regarding the establishing of a Joint Training Committee, but no progress has been reported as yet.

*Oxford*: The position is a little obscure as the Union branch for this area has a secretary living in Banbury, 12 miles away. While discussions have been proceeding, nothing material has yet emerged, although a class

could be sustained in Oxford in all probability.

*Preston*: The local branch of the Union has been pressing for classes in Preston, and these have now been established to cover the surrounding area. Despite repeated attempts, it has proved impossible to secure any co-operation from the employers in this area owing in a large measure to the fact that the B.D.A. branch is not yet functioning. The local branch secretary has been authorized to contact the B.D.A. headquarters on the matter.

The classes at *Blackpool* have never been very satisfactory, having no accommodation or equipment, and they have now been told that they must leave the inadequate loft in which they have been working. It may be better for this class to join forces with the one now established at Preston.

*Reading*: No progress can be reported here, although there can be no doubt that a place the size of Reading should be able to run a class at least to Intermediate standard.

*Rochester*: There are a number of students ready to commence and a good deal of dissatisfaction is being expressed because accommodation has not been found for the classes. All they can do locally has been done and the branch has been advised to contact the Regional representative of the Ministry of Education on the matter.

*Southend*: The opinion has been expressed that until the classes are made compulsory nothing can be done. An attempt has been made to answer this point by urging that what has been done elsewhere can be done in Southend, and a report has been received that classes are now being held.

*Southampton*: An enthusiastic letter reports good progress here. There are 50 students, and the course now extends to the third year of the syllabus.

*Stoke*: Although a Joint Training Committee is in existence, the up-to-date position regarding classes has not been reported recently.

*Surrey*: The County Council approached the B.D.A. on the question of classes for dental technicians, and the letter was sent through to this office. A suitable reply has been sent and developments are awaited.

*Swansea*: No positive developments.

*West Midlands*: The Secretary of the West Midlands Advisory Council for Technical, etc., Education, wrote regarding training facilities in the area covered by that Committee. The local organizers of the Union were asked to make a survey and a report, and they have recommended that classes be established in Shrewsbury and Worcester. Their report is to be considered at the end of November at a meeting to which they have been invited. It has been suggested that they should be co-opted on to any sub-committee dealing with the question of training classes.

## THE INSTITUTE OF BRITISH SURGICAL TECHNICIANS

A LECTURE will be given by Mr. Howell Richards, L.D.S. R.C.S., on "Some Removable Orthodontic Appliances" under the auspices of the Institute of British Surgical Technicians (Dental Section) on Tuesday, Jan. 30, 1951, at 6.30 p.m. at the British Council Film Theatre, 6, Hanover Street, London, W.1. Admission tickets are obtainable on sending stamped addressed envelope to the Institute of British Surgical Technicians, 6, Holborn Viaduct, London, E.C.1, or through members of the Institute. Further lectures are being arranged.

## SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION

THE week-end of Feb. 9–10, 1951, is the occasion of the Annual Conference Week-end of the Dental Laboratories Section of S.I.M.A., and all the meetings are being held at The Holborn Restaurant, W.C.1.

**Programme**

Friday, Feb. 9.—

6.30 p.m. Annual Dinner and Dance in the Royal Venetian Suite.

Saturday, Feb. 10.—

10.30 a.m. Annual General Meeting to be held in the Gordon Salon.

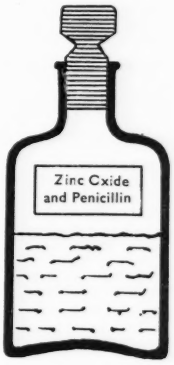
2.30 p.m. Series of Table Demonstrations in the Council Chamber given by members of the area branches of the Dental Laboratories Section.

Admission is by invitation obtainable from any member of the D.L.S. of S.I.M.A.

# ILLUSTRATED HINTS

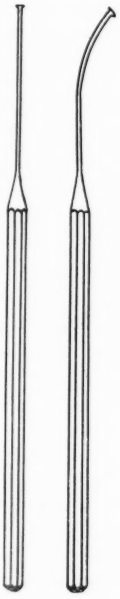
## PAINFUL INFECTED SOCKETS

A normal method of dealing with a painful infected socket is to syringe it out and insert a mixture of dentalone and zinc oxide on a wisp of cotton-wool. If the zinc oxide is first mixed in equal proportions with penicillin powder (e.g., from 100,000-unit bottle for intramuscular injection) healing will be considerably accelerated. It is obvious, however, that this must be done before any sequestration occurs. In order to facilitate this method it is suggested that the zinc oxide and penicillin powder be premixed and kept in an air-tight bottle ready for use. An old dentalone bottle is ideal for this purpose, as it has a ground-glass stopper.



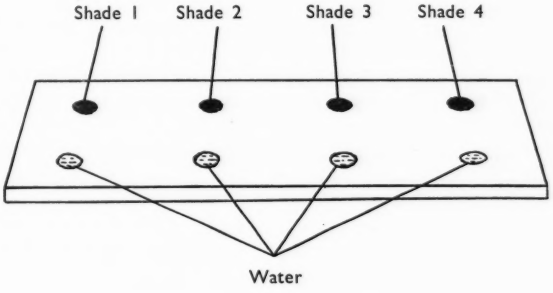

## A USE FOR A ROOT CANAL PLUGGER

It is often necessary to drill out a slightly carious fissure, and the smallest size of fissure bur would be quite adequate, but for the fact that there is no plastic instrument thin enough to condense amalgam into the resulting cavity. One can widen the fissure, but in many cases, especially when dealing with children, this causes some pain, and is unnecessary, for it will be found that the smallest size of root canal plugger is just the right size for this job. Little force is needed to produce a heavy pressure and the instrument can be bent to any desired shape.



## MATCHING CEMENTS FOR JACKET CROWNS

The cement used in fitting a jacket crown can considerably alter the colour match in the finished job. To find the cement which gives the best match, mix a little light cement powder with water, put some of the mix in the jacket crown, place it on the tooth and note colour match, remove, wash out, and try again with a cement of a darker shade, repeat, using all shades, then use the best match for the final fixing, in the usual way.



Jacket Crown

# A NEW CASTING MATERIAL

A TRUE chromium cobalt molybdenum alloy has recently been placed on the market, and some technical data may be of interest to those who are thinking of employing this material. The alloy is known as "Svedion" and has been in use for many years elsewhere throughout the world.

Because of its properties it is useful for dental castings, particularly in one-piece castings for partial dentures. The alloy is odourless and tasteless, resistant to the oral fluids, and completely neutral to the body tissues. It may be used in general surgery as well as in dentistry.

Its property of lightness and great strength means that dentures are very much thinner and smaller than if made with gold. However, its very properties mean that special equipment is necessary for its use. The melting-point of the alloy is high—2550°F. (1400°C.). Thermostatically-controlled pre-heating furnaces, melting machines, and casting machines are necessary, as well as special methods of finishing and polishing. The finishing is done on a small sand blaster and polishing on a very high-speed lathe.

The alloy has a brinnel hardness of 300, and its density is 8. Galvanic action is negligible both with gold and amalgam. In colour it is rich platinum with a high lustre and it takes a very fine polish. In price it is cheaper than gold, although the casting process is more expensive, but the finished article is still cheaper than a gold casting. "Svedion" is not a new material—it is only new to this country.

# ABSTRACTS *from other Journals*

### Superior Labial Frenotomy

Although it is usually conceded that the superior labial frænum should be resected if it is abnormal, it has always been a problem as to when it is actually abnormal. The article discusses the normal and abnormal positions and describes an operation for its removal.

The frænum is attached to the palatine papilla in infancy, but as the natural growth of the mouth progresses the frænum remains practically dormant while the maxilla enlarges downward and forward, giving an apparent raising of the frænum.

The frænum can still be attached to the papilla when the central incisors are erupting at about the age of seven and may appear to be abnormal. It is, in fact, possibly quite normal, for the approximation of the centrals does not take place immediately, but awaits the eruption of the laterals and sometimes the canines. The frænum during this time will atrophy or be raised by normal growth and will cause no interference. The age of the patient is of very great importance in diagnosing an abnormal frænum. In general a superior labial frænum may be abnormal when it is attached to the palatine papilla, as shown by movement or blanching of the interdental tissue upon stretching the upper lip. However, although this may indicate an abnormality in a patient aged 11 to 12 years, it may be normal in a much younger patient.

In an abnormality the separation of the centrals is not due to the bulk of tissue, but to its movement. So in an operation for resection of the frænum it is not necessary to remove the whole frænum, but only a part, in order to prevent excessive movement. The operation for frænotomy consists in severing the connexion between the basal portion of the frænum and the interseptal tissue. It is performed at about the age of 11 or 12 years. A small triangle of tissue is removed from the alveolar crest between the centrals to a point about 4 or 5 mm. above the gingival crest. A general anæsthetic is preferred as the operation is of short duration and local anæsthetic may cause ballooning of the tissues. Most cases have to be followed up with orthodontic treatment. —CURRAN, MORVEN (1950), *J. Amer. dent. Ass.*, **41**, 419.

### Front Surface Dental Mirror

Although the mouth mirror is used more than any other instrument, it has received little attention in the literature of the profession. The author points out that a dental mirror must have high optical qualities if it is to provide a clear undistorted image. The mouth mirrors now supplied to the profession cannot do this owing to the inherent optical properties of the glass mirror. The two types of mirror are defined as first or front surface mirror and the second or back surface mirror. The path of light in a front surface mirror is reflected from the surface or top plane, while the back surface mirror reflects from the second or back surface. Most of the mirrors in common use are back surface mirrors. If a careful inspection is made of the image by a back surface mirror secondary or "ghost" images will be seen. They are not as sharply defined as the principal image and tend to show as a blurred outline to the main image, but in many instances may show as an actual double image. These "ghost" images are due to two images arising from reflections from the upper surface of the mirror and also from the under surface where the glass has been silvered. The depth of focus of the "ghost" images will depend upon the thickness of glass used in the mirror. Dental mirrors are made of very thin glass, so that the reflections approximate one another and the less apparent are the "ghost" images.

An understanding of the optical properties of mirrors will clearly show the advantages of the front surface mirror, where only one image will be obtained. These mirrors are not made of glass but of metal and have only one reflecting surface. The author describes the use and tests made with a rhodium first surface mirror. The material was found to be boilable and antiseptics had no effect on the surface. The mirrors were also tested against all the common dental drugs and materials, cements, iodine, amalgam, etc. In each case the mirror was unaffected, except that dental mercury tended to dull the surface after remaining in contact for nearly two weeks. The results demonstrated that these rhodium first surface mirrors (*a*) are of exceptionally high durability; (*b*) have decided optical advantages over the type of mirror now in use.

The author suggests the interesting possibility that the popularity of high intensity operating lights may be an effort to compensate for the inadequate mouth mirror. It is claimed that a routine use of a first surface mirror will help to eliminate a great amount of eyestrain and fatigue to the dentist.—NELSEN, ROBERT J. (1950), *J. Amer. dent. Ass.*, **41**, 456.

### Relieving Pain caused by Dentures

The author discusses two conditions responsible for pain arising under a denture. Pain is more prevalent in the mandible than in the maxilla, due to the fact that the mandibular denture is "ridge bearing".

Uneven resorption of bone causes sharp spiny bone processes like small needles, which lie just underneath the mucous membrane. Pressure on the mandibular denture results in a localized change in blood-pressure which may affect the mandibular nerve. This is due to a backward pressure through the vertical canals joining up with the main mandibular nerve, which results in pain, through pressure on the inferior dental nerve. These two conditions, sharp spicules of bone and pressure, are claimed to be the cause of denture pain.

The only satisfactory way of treating these conditions is by surgery and, when indicated, by cautery as well. Under a local anæsthetic an incision is made along the alveolar ridge and the underlying bone exposed. The irregularities in the bone are smoothed with bone files and rongeurs. Where small bleeding points are located they must be carefully cauterized, making sure that the nerves and blood-vessels are destroyed as deeply as possible. Phenol was found to be the best cauterizing agent. The tissue is sutured into place; many sutures are needed as the tissue may heal slowly.

The old denture must not be used during the period of healing and the new denture constructed some two to three weeks later.—DRURY, GALEN H. (1950), *Oral. Surg., oral Med., oral Path.*, **3**, 31.

**A Clinical Investigation of the Role of Subperiosteal Synthetic Bone Implantations in the Elimination of Undercut Alveolar Ridges**

This investigation deals with a method of eliminating undercuts in the alveolar ridge arising in the anterior section of the mandible. The usual method is by the operation of alveolectomy—that is, by the actual removal of bone from the alveolus, with the consequent elimination of any undercut present. This operation is not always successful as too much bone may have to be removed to obtain the required result. A new method is suggested and the clinical results of this method are carefully discussed in the light of new findings in relation to known facts.

The operation consists of implanting in the undercut region a synthetic material between the periostium and cortical bone. The investigation was to study the fate and role of this synthetic material.

The material consists of the inorganic salts of bone, in the proportion that they occur in bone, mixed with a 5 per cent gelatin matrix. The mineral salts employed were:—

| | *per cent* |
|---|---|
| Tricalcium phosphate .. | 95·0 |
| Calcium carbonate .. | 3·0 |
| Magnesium carbonate .. | 1·0 |
| Sodium carbonate .. .. | 0·5 |
| Calcium chloride .. .. | 0·2 |
| Sodium chloride .. .. | 0·2 |
| Ferrous sulphate .. .. | 0·1 |

The salts were mixed to a homogenous mixture by a pestle and mortar. The gelatin was heated in a boiling-water bath and the mineral salts added until the desired consistency was obtained. The operation was performed by an incision on the crest of the mandibular ridge from first bicuspid to first bicuspid region. The mucoperiosteum was liberally undermined to a level approximating the upper border of the attachment of the mentalis muscle. The implants of salts were placed between the periosteum and the cortical plate of bone. The flap was sutured, care being taken that the tissues were under no tension.

In each treated case stone models were obtained beforehand and compared to models taken three months later. The results were classified by the use of photographs, photomicrographs, and tracings, as well as by sectioning and measuring the models. All cases showed new depositions of bone. The degree of deposition seemed to vary inversely with the muscle tone of the lower lip. Post-operative discomfort was found to be negligible if the implant was sterile and the operation carried out aseptically (as far as possible in the mouth). From the investigation it appears that this is a satisfactory method of eliminating undercuts without the removal of bone.—COSTIGAN, W. E. (1950), *Northw. Univ. Bull.*, **1**, No. 19.

A single fact is worth a shipload of argument.

## BOOK NOTICES

[*The undermentioned books have been received, and will be reviewed in subsequent issues.*]

**RADIOLOGY OF THE TEETH AND JAWS, including Dental Radiography.** For Students and Practitioners of Dental Surgery and Radiology. By FRANK L. INGRAM, D.M.R.D., L.D.S., M.R.C.S., L.R.C.P., Senior Assistant in the Diagnostic X-ray Department of Guy's Hospital; Lecturer in Dental Radiology at Guy's Hospital Dental School. $5\frac{3}{4} \times 9$ in. Pp. 160, with 281 illustrations. 1950. London: Edward Arnold & Co. 16s.

**ORAL PATHOLOGY.** A Histological, Roentgenological, and Clinical Study of the Diseases of the Teeth, Jaws, and Mouth. By KURT H. THOMA, D.M.D., F.D.S. R.C.S., Professor of Oral Surgery, Emeritus, and Brackett Professor of Oral Pathology, Harvard University. Third edition. $6\frac{5}{8} \times 9\frac{3}{4}$ in. Pp. 1592 + xx, with 1660 illustrations, including 78 in colour. 1950. London: Henry Kimpton. £6 5s.